

NOTE

NOTES ON THE BOX HUCKLEBERRY, *GAYLUSSACIA BRACHYCERA* (ERICACEAE), AND ITS UNEXPECTED PRESENCE IN NORTH CAROLINA

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The box huckleberry, *Gaylussacia brachycera* (Michx.) A. Gray, is now known in northern Durham County, North Carolina. This is the first record for the state, extending its range approximately 160 miles southeastward from western Virginia. The chronology of discovery of this remarkable species is outlined below, and its continued unsettled systematic position is noted, two centuries after its initial publication by Michaux (1803). The North Carolina occurrence of this species, which is thought to have been a long-time resident of this region and not a recent introduction, strongly suggests that floristics currently remains an important challenge to both professional and amateur naturalists and that their future close cooperation is essential to advancing the floristic inventory of much of our area, as well as much of the nation. As Wilson (2000) has emphatically pointed out, floristic and faunistic work remains both scientifically exceedingly important and urgent for the welfare of mankind. The immediate stimulus for these notes on the box huckleberry was its recent discovery for the first time in North Carolina by Stefan Bloodworth on his grandfather's farm.

SPECIMEN CITATION: U.S.A. North Carolina: Durham Co., straggly shrublet 2–3 dm tall growing in a thicket or low woods on ridge top of the Jordan Farm perhaps 1.5 miles NE of Bahama and 2 miles along Wilkins Road (State Rd 1613) overlooking the Flat River several hundred feet below, 6 Apr 2003, *R.L. Wilbur, S. Bloodworth & E.M. Wilbur 76411* (DUKE).

*Gaylussacia brachycera* is now known from eight states (Del., Pa., Md., Va., N.C., W.Va., Ky., and Tenn.; Figure 1). It was mistakenly reported from the inner coastal plain of South Carolina (Radford et al.

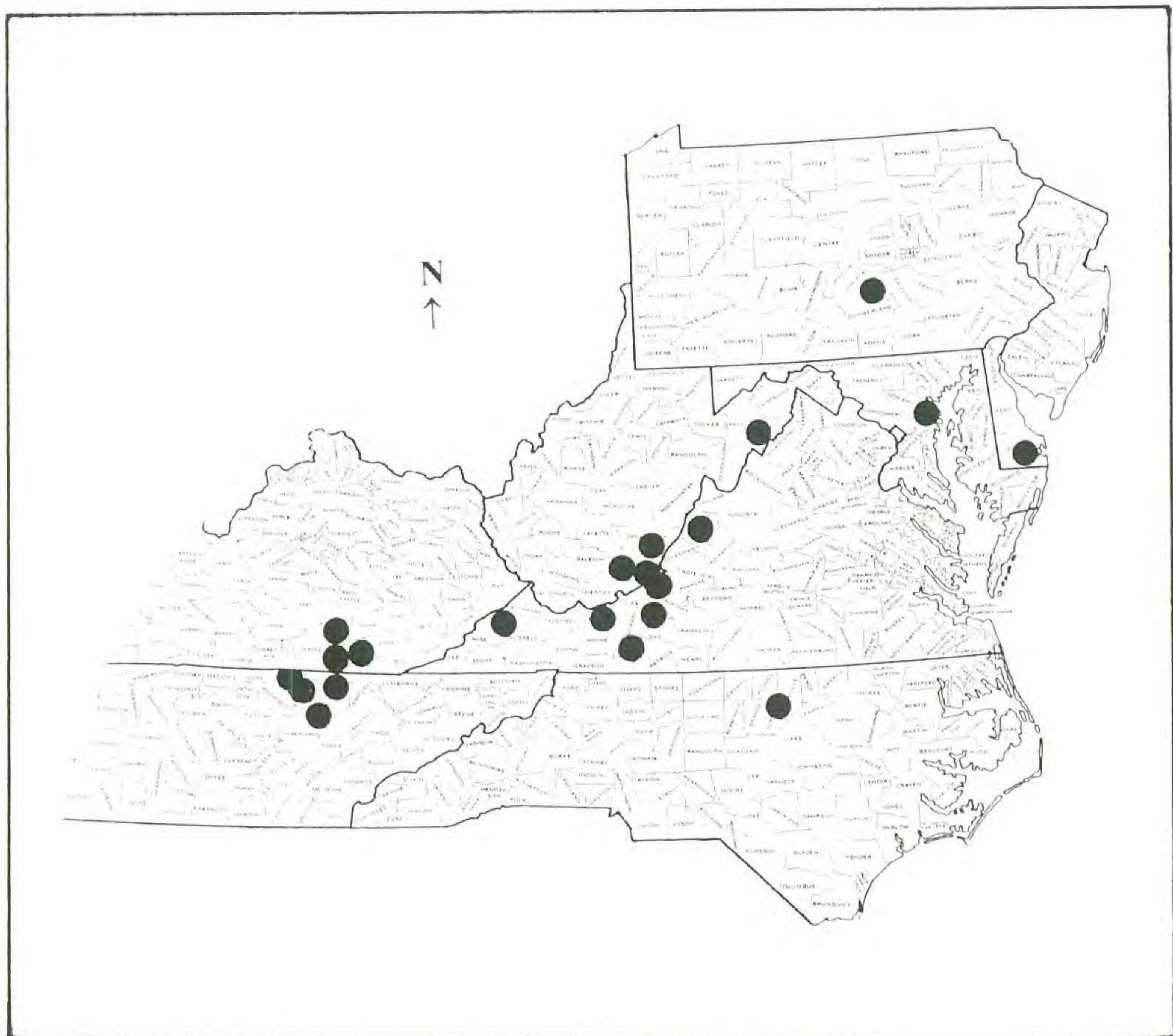


Figure 1. Distribution of *Gaylussacia brachycera*, based on specimens examined from 24 herbaria.

1968), but this has been shown to be a misidentification of a blueberry of the genus *Vaccinium* section *Herpothamnus* (Small) Sleumer (Kirkman and Ballington 1990; Kirkman et al. 1989; Rayner and Henderson 1980; Uttal 1986). As a *Vaccinium*, it has been ranked as a species (Rayner and Henderson 1980; Uttal 1986), a subspecies (Kirkman and Ballington 1990), and as a minor variant unworthy of formal recognition from the far more widespread *V. crassifolium* Andr. (Luteyn et al. 1996).

The late Professor Edgar Wherry (1934) offered sound advice seventy years ago in suggesting that “before theorizing as to the principles of plant distribution, . . . let us first find out more as to where our species of native plants really grow.” The plant that stimulated that bit of sage advice was *Gaylussacia brachycera* (Michx.) A. Gray, first described by Michaux (1803) as *Vaccinium brachycerum* from what is now either western Virginia or eastern West Virginia. Shortly thereafter, Matthias Kinn made a collection of the same species in what is now Greenbrier County, eastern West Virginia. After these two discoveries, the species

disappeared from scientific view for more than 45 years. Even Asa Gray was unable to secure a specimen for illustration until Professor Spencer F. Baird, then of Dickinson College, discovered the plant in nearby Perry County, Pennsylvania.

From Baird's collection, Asa Gray (1846) was able to prepare a fuller description, leading to the transfer of the species with 10 pyrenes to *Gaylussacia* Kunth, a largely South American genus, under which name it and the other North American huckleberries were grouped for nearly nine decades (e.g., Camp 1935, 1941; Gray 1886; Robinson and Fernald 1908; Small 1897). However, Small (1933) concluded that the perhaps nine or so taxa then assigned to the genus *Gaylussacia* and found in the eastern United States were better segregated into three genera, which he felt were clearly distinguished from their supposed South American congeners. Small placed the box huckleberry in the monotypic genus *Buxella*, which turned out to be a latter homonym of a generic name that van Tiegham had earlier proposed for a genus of the Buxaceae from Madagascar and South Africa. Small's nomenclatural error has never been corrected, but his taxonomic judgment that the box huckleberry was deserving of independent generic recognition has received at least minimal support from Camp (1940) and more recently from the largely molecular investigation of Floyd (2002). Neither felt the evidence was conclusive, but both noted that the box huckleberry was so isolated from its supposed congeners that its relationships clearly deserved further investigation.

After surveying the historic record of the box huckleberry and the meager representation in some of the larger herbaria and observing only the largest colony of the species in Pennsylvania, Coville (1919) pessimistically concluded that this rare and beautiful shrub was nearing extinction. Coville found that hearsay reports of the presence of the species were not substantiated by vouchers of their occurrence except for the stations in Pennsylvania and Delaware, and the latter station appeared at that time no longer to exist. No doubt stimulated by Coville's discouraging account, Wherry re-located the site in southern Delaware in early 1919.

The Reverend Fred W. Gray (1922) altered the above gloomy picture by spectacularly demonstrating the effectiveness of enlisting the natives of rural, eastern West Virginia. He sent letters to individuals and to the small newspapers of the region requesting information about the source of the berries used in making "juniper pie." As a result of Gray's letter writing and newspaper inquiries, he was soon swamped by reports of 75 or so stations for the berries. Gray soon verified 40 or so of the stations in Greenbrier, Monroe, and Summers Counties, West Virginia, with

unchecked reports from the Pocahontas and Raleigh Counties in West Virginia, and additional reports from bordering counties in Virginia. The abundance of stations in the area seemed to have reassured all concerned that the box huckleberry was definitely not on the verge of extinction. Unfortunately, Gray published no further reports on the remaining locations sent to him. [It should be noted here that interest in the economic possibilities of the box huckleberry was not only in the quality of its fruit but also in its foliage, which made it “the most beautiful native evergreen ground cover known” to Harlan P. Kelsey, then a well-known landscape designer (Coville 1919).]

Tantalizing bits of information suggest that the colonies, or at least the two that were best known and most completely surveyed by biologists, were each a single plant spread by vegetative growth from a single seed. This suggested to Coville (1919) that the largest colony (an eight-acre patch in Pennsylvania) was 1200 years old, allowing for an average six inches of growth per year. Although the plants were in fruit at the time of Coville’s visit, no seedlings were in evidence, and every tuft of new foliage investigated as a possible new seedling was found to be attached to a rootstock leading to an older plant. A native of the area stated that the colony fruited every year, but seedlings were unknown. Coville speculated that the colony was completely or largely self-incompatible. Fruit was set, but the seeds either did not germinate or yielded only a very few seedlings incapable of surviving competition. Coville planted 1600 seeds gathered from the Pennsylvania population. These yielded only three unthrifty seedlings. This certainly suggests that the colony was effectively self-sterile. Plants from the Pennsylvania colony were crossed with those from the Delaware patch; the resultant fruit was developing but had not yet matured when Coville’s article was submitted for publication. Wherry (1934) belatedly provided the only information available as to the results of the cross between the Delaware and Pennsylvania colonies: that cross resulted in four seeds that germinated into “vigorous seedlings,” just as Coville had predicted might be the case. Clearly, though, the economic possibilities of the box huckleberry as either an esteemed fruit or as a foliage ground cover are yet to be realized.

It has been suggested that *Gaylussacia brachycera* is a very recent bird-dispersed introduction into the Durham, North Carolina area. The size of the Durham colony is approximately 125 × 100 feet, and its location on a remote dry ridge above the Flat River, together with what little is known about the reproductive biology of the species, argues against a recent avian introduction, and suggests instead a long presence

in its current location. Figure 1 shows the counties from which the box huckleberry was represented in the 24 herbaria from which specimens were examined about a decade ago. The map illustrates that the range of the species is considerable, as are the gaps between known populations. Although it is true that the vagility of the box huckleberry is unknown, it would seem to be slight since its current range consists for the most part of widely scattered, isolated colonies. Field exploration for additional populations of *G. brachycera* and study of its reproductive biology would seem to be a most worthy task in which professional systematists, established herbaria, and amateur naturalists could most profitably and pleasurably collaborate.

I conclude these notes by listing the formal synonymy of the box huckleberry.

*Gaylussacia brachycera* (Michx.) A. Gray, Mem. Amer. Acad. Arts n.s. 3: 54. 1846.

*Vaccinium brachycerum* Michx., Fl. Bor.-Amer. 1: 234. 1803.

*Vaccinium buxifolium* Salisbury, Parad. Lond. Pl. 4. 1805. *nom. illegit.* (Article 52).

*Adnaria brachycera* (Michx.) Kuntze, Revis. Gen. Pl. 2: 383. 1891.

*Decamerium brachycerum* (Michx.) Ashe, Rhodora 33: 197. 1931.

*Buxella brachycera* (Michx.) Small, Man. S.E. Fl. 1009, 1506. 1933.

REPRESENTATIVE SPECIMENS: U.S.A. Delaware: Sussex Co., shores of Indian River, near Millsboro, May 1870, *W.M. Canby s.n.* (A, GH, PH); sandy banks, S side of Indian River, 1 mi below Millsboro, 23 May 1875, *A. Commons s.n.* (GH, NY, PH, US). Kentucky: McCreary Co., in upland pinewoods, mostly along ridge crests, near Peter's Lookout Tower, 28 Jun 1978, *S.W. Leonard 7178* (FSU, VDB); Pulaski Co., Beaver Creek area between Alpine and Greenwood, 11 Sep 1940, *F.T. McFarland, 1<sup>st</sup> Century Fl. Kentucky 35* (DUKE, GH). Maryland: Anne Arundel Co., 1 mi E of Pasadena, steep bank of Magothy River under *Kalmia latifolia*, 25 May 1950, *F.H. Sargent s.n.* (FLAS, FSU, NCSC, WVA). North Carolina: Durham Co., low woods on ridge top perhaps 1.5 mi NE of Bahama and 2 mi along State Rd 1613 overlooking the Flat River, 6 Apr 2003, *R.L. Wilbur, S. Bloodworth & E.M. Wilbur 76411* (DUKE). Pennsylvania: Perry Co., hills near New Bloomfield, 19 May 1869, *T.C. Porter s.n.* (GH, NCSC, NY); hillsides near New Bloomfield, 19 Aug 1919, *J.K. Small s.n.* (FLAS, GH, MICH, NY, PENN, US, WVA). Tennessee: Fentress Co., light sandy soil, 15 May 1931, *H.M. Jennison et al., Pl. Exsiccatae Grayanae 577* (GH, DUKE, MICH, NCSC, PH, US, USF, WVA); Morgan Co., Clear Fork of S Cumberland River, Rugby, 31 May 1973, *H.M. Jennison et al. 1193* (DUKE, GH); Pickett Co., sandy oak-pine woods about 15 mi N of S entrance to Pickett State Park, 5 May 1973, *R. Kral 49854* (MICH, NCSC, TENN, VDB); Scott Co., South Fork National River . . . just E of Station Camp Creek, 2 Jun 1988, *B.E. Wofford 88-3* (GH, NY, TENN, US). Virginia: Bland Co., lower slope of Little Walker Mountain, about ½ mi W of VA 601, 8 Jan 1967, *A. Crooks 670* (FLAS, GA, NY, PH, TENN, VDB,

VPI); Carroll Co., N facing slope, quartz-feldspar pebble, Fries Junction, 13 Jun 1921, *H.W. Trudell s.n.* (DUKE, WVA); Dickinson Co., Pine Mountain S of Upper Skeg Fork headwaters, 24 Aug 1982, *T.F. Wieboldt 4453* (USF, VPI, WILLI); Montgomery Co., Prices Mountain near Blacksburg, 1930, *E.C. Magill s.n.* (VPI). West Virginia: Greenbrier Co., moist N hillside, Caldwell, 8 May 1934, *H. Gray 65* (TENN); Hardy Co., Buck Mountain, spur between forks of Ellis Hollow 2.75 mi SE of Baker, 26 Jan 1980, *T.F. Wieboldt & R.B. Davenport 3605* (USF, VPI, WILLI); Monroe Co., loamy soil under *Rhododendron* and *Kalmia* about 3 mi N of Hollywood, 28 Apr 1961, *M.G. Henry 7276* (DUKE, PH); acid bluff on Second Creek, 2 Jul 1941, *Southern Appalachian Bot. Club 248* (GH, FSU, NY, PENN, TENN, VDB, VPI, WVA); Pocahontas Co., Cass, 1926, *F. Gray s.n.* (WVA); Summers Co., second growth woodland . . . 0.2 mi along County Rd. 12 S of Hinton, 13 Aug 1966, *A. Crooks 480* (FLAS, PH, TENN, VDB, VPI, WILLI).

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